CLEAN VERSION OF REPLACEMENT PARAGRAPHS FOR ENTRY DURING PROSECUTION OF US APPLICATION N0. 09/884,879

~~Page 1, first full paragraph, beginning at line 1:~~

BACKGROUND AND SUMMARY OF THE INVENTION

a1 The present invention concerns a pump for flow rates in the range from about 1 to 1000 nl/min. The pumps according to the invention are particularly suitable for applications in the field of medical diagnostics such as microdialysis or ultrafiltration.

Page 12, fourth full paragraph, beginning at line 26:

BRIEF DESCRIPTION OF THE DRAWINGS

a2 The present invention is elucidated in more detail by figures.

Page 13, seventh full paragraph, beginning at line 11:

~~DETAILED~~ DESCRIPTION OF THE INVENTION

a3 Figure 1 shows a cross-section through a pump according to a first embodiment. The arrangement shown has a channel (2) having a diameter of 100 µm in which a transport liquid is located. Water was chosen as the transport liquid in the case shown. The channel is closed with a wettable membrane (4) in a region of the transport channel with an enlarged cross-section. In the present case a BTS 65 from the Memtec Company (now: USF Filtration and Separations Group, San Diego, CA, USA) (PESu hydrophilized with hydroxypropyl cellulose) was used as the membrane. This very hydrophilic membrane is asymmetric and has pores in the range from about 10 µm on one side and 0.1 µm on the other side. The side with the larger pores faces the liquid. A non-wettable membrane made of expanded PTFE is located above the wettable membrane (4). The non-wettable membrane is mounted on the wettable membrane in such a manner that it completely covers the side of the wettable membrane (4) which faces away from the transport liquid (3). The figure shows that the arrangement was selected such that the transport liquid can only evaporate from the channel system via the wettable membrane (4). The system comprising the wettable (4) and non-wettable membrane (5) is surrounded by a housing (7) in such a manner that evaporated transport liquid can only reach the interior of the

housing or vessel (7). The interior of the housing (7) contains a sorbent (6) which is silica gel in the present example (molecular sieve MS 518, Grace Favison, Baltimore, Maryland, USA). Figure 1 also shows that the sorbent is in direct contact with the non-wettable membrane. As described above this is possible because the non-wettable membrane prevents a fluid short-circuit i.e. a direct sorbtion of liquid from the capillaries of the wettable membrane without a gaseous/ vaporous intermediate phase. The pump shown achieved in experiments a flow rate in the range of 1 to 1000 nl/min (nanolitres per minute) in the direction of the arrow (8).